DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-008822
Date Inspected: 03-Sep-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 700
OSM Departure Time: 1530
Location: Clackamas, OR

CWI Name:	Mike Gregson, Jose Salazar	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☐ Yes ☐ No ☑ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes ☐ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☑ Yes ☐ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: Hinge K Pipe Beams

Summary of Items Observed:

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

OIW Fabrication Shop-Bay 3
Hinge-K Pipe Beam Assembly 102A-2: 9/3/09
a111-2 Forging to a110-2 Base Plate
QA Inspector noticed this assembly 102A-1 had been previously placed in position and welder #O6, Mr. Tim O'Brian, was in process of performing submerged arc welding, on the e107 stiffener plate to a111-2 forging, designated as weld joint # W1-151, in the flat position. QA Inspector noted that this weld joint was designated as a partial joint penetration (AWS D1.5 TC-P5-S) and verified Mr. O'Brian was currently qualified for this process/position. QA Inspector noted that Mr. O'Brian was utilizing OIW approved welding procedure specification (WPS 4016) and randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit (177 C). QA Inspector noticed QC Inspector Jose Salazar was present to monitor in-process welding parameters (amps/volts) and noted that Mr. Salazar had previously recorded in-process welding parameters of 430 amps and 30 volts. QA Inspector verified in-process welding parameters of 420 amps and 29 volts, which appears to be in compliance with the applicable welding procedure specification and contract requirements.
QA Inspector noticed welder #J6, Mr. Craig Jacobson, was in process of performing submerged arc welding, on

the e108 stiffener plate to a111-2 forging, designated as weld joint # W1-126, in the flat position. QA Inspector noted that this weld joint was designated as a partial joint penetration (AWS D1.5 TC-P5-S) and verified Mr. Jacobson was currently qualified for this process/position. QA Inspector noted that Mr. Jacobson was utilizing OIW approved welding procedure specification (WPS 4016) and randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit (177 C). QA Inspector noticed QC Inspector Jose Salazar was present to monitor in-process welding parameters (amps/volts) and noted that Mr. Salazar had previously recorded in-process welding parameters of 405 amps and 28 volts. QA Inspector verified in-process welding parameters of 410 amps and 29 volts, which appears to be in compliance with the applicable welding procedure specification and contract requirements.

Hinge-K Pipe Beam Assembly 102A-4: 9/3/09
a111-4 Forging to a110-4 Base Plate
CWR #2244-007
QA Inspector noticed this CWR #2244-007 was currently in-process and welder #J6, Mr. Craig Jacobson, was performing flux-core arc welding (FCAW) on the previously excavated area, in the base metal of the a111-4 forging. QA Inspector noted that visual/ magnetic particle testing had been previously performed on the excavation by QC Inspector Jose Salazar and no rejectable indications were found. QA Inspector also had previously noted the dimensional measurements and performed visual/ magnetic particle testing on the previously excavated area and found no rejectable indications. QA Inspector noted that Mr. Jacobson was performing the FCAW, in accordance with the applicable welding procedure specification (WPS 3048), in the vertical position and QA Inspector recorded in-process welding parameters of 235 amps and 24 volts with a pre-heat temperature of approximately 300 degrees Fahrenheit (149 C). QA Inspector noted that Mr. Jacobson appeared to be in compliance with the applicable welding procedure specification, on this CWR #2244-007. See attached pictures below.

OIW Fabrication Shop-Bay 6 (ESW Overlay Process)
Hinge-K Pipe Beam Fuse Assembly 120A-7: 9/3/09
a124-5 Half Fuse to a124-15 Half Fuse
QA Inspector noticed that the first/second ESW stainless steel overlay passes were complete and welder #F17, Mr. Igor Frolov, was in-process of performing the third layer ESW passes (approximately 50% complete), on this fuse assembly 120A-7. QA Inspector noted that the first electro slag welding (ESW) passes were completed in the flat position, utilizing Soudokay brand Soudotape 309L stainless steel consumable strip and the second/third layer (in-process) electro slag welding (ESW) passes, utilizing Soudokay brand Soudotape 316L stainless steel consumable strip, per contract requirements. QA Inspector randomly noticed QC Inspector's Mike Gregson and Jose Salazar were present, to verify in-process welding parameters (amps/volts) and monitor in-process continuous pre-heat temperatures. QA Inspector spoke with QC Inspector Jose Salazar and Mr. Salazar explained that welding amps were recorded as 1200 amps/25.2 volts, travel speed at 241mm/min. and a pre-heat temperature recorded at 70 Fahrenheit (21 C). QA Inspector verified Mr. Igor Frolov was currently qualified for this welding process/position, verified amps/volts (1200/25.2) and randomly recorded pre-heat temperatures of approximately 70 Fahrenheit (21C). QA Inspector noted that Mr. Igor Frolov appeared to be in compliance with the applicable approved welding procedure specification (WPS 7003). See attached pictures below.

Material, Equipment, and Labor Tracking
QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project.

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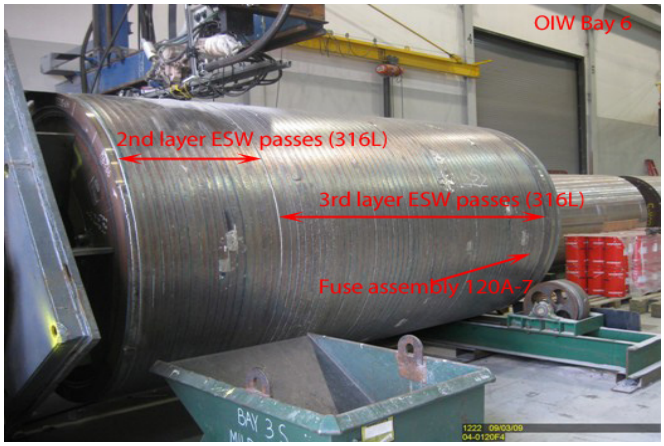
The QA Inspector observed at Oregon Iron Works: 6 OIW production personnel and 2 QC Inspectors.
The QA Inspector observed at AG Machining: 1 Machinist using a horizontal lathe.



Summary of Conversations:
As noted above.

Comments
This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Vance,Sean	Quality Assurance Inspector
Reviewed By:	Adame,Joe	QA Reviewer